Australian/New Zealand Standard™

Performance of electrical appliances—Airconditioners and heat pumps

Part 3: Calculation of performance for minimum energy performance standard (MEPS) requirements

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

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The following are represented on Committee EL-015:

Australian Consumers Association
Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
Australian Retail Association
Business New Zealand
Consumer Electronics Suppliers Association
Department of Industrial Relations (Qld)
Electrical Compliance Testing Association
Energy Efficiency and Conservation Authority of New Zealand
New South Wales Ministry of Energy and Utilities
National Appliance and Equipment Energy Efficiency Committee
National Association of Testing Authorities
Office of the Chief Electrical Inspector
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Additional interests participating in the preparation of this Standard:

Airconditioning and Refrigeration Equipment Manufacturers Association of Australia
Australian Institute of Refrigeration Air Conditioning and Heating
Institute of Refrigeration Heating and AirConditioning Engineers of New Zealand
Primary Industries and Resources, South Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-015, Quality and Performance of Household Electrical Equipment

Testing of airconditioners under controlled operating conditions is defined in AS/NZS 3823.1.1, *Performance of electrical appliances—Airconditioners and heat pumps*, Part 1.1: *Test Methods—Non-ducted airconditioners and heat pumps—Testing and rating for performance*, and AS/NZS 3823.1.2, *Performance of electrical appliances—Airconditioners and heat pumps*, Part 1.2: *Test Methods—Ducted airconditioners and air-to-air heat pumps—Testing and rating for performance*. Direct assessment of the performance of airconditioner appliances requires access to large capacity calorimeter or psychrometric loop test facilities. As an alternative to physical testing, this Standard defines an assessment procedure for minimum energy performance requirements based on simplified measurements and a simulation model of airconditioner performance. In all cases, test results obtained by physical testing using the procedures defined in AS/NZS 3823.1.1 or AS/NZS 3823.1.2 take precedence over the results obtained by using this Standard. If the simulation methods described in this Standard are not considered applicable to a particular appliance, then that appliance has to be assessed under AS/NZS 3823.1.1 or AS/NZS 3823.1.2.

The procedure defined in this Standard provides a low cost method for assessing airconditioner performance. It may also be used to assess design modifications for appliances that fail the minimum energy performance standard set in AS/NZS 3823.2.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies procedures for calculating the performance of factory-made residential, commercial and industrial, electrically-driven, mechanical compression, single-package and split-system, ducted and non-ducted airconditioners and heat pumps employing air- and water-cooled condensers. This Standard covers equipment utilizing one or more refrigeration systems, one outdoor unit and one or more indoor units controlled by a single thermostat/controller. This Standard covers equipment utilizing single, multiple and variable capacity components.

NOTE: The method in this Standard includes a combination of measured component performance, equipment operating conditions and a mathematical model to determine the appliance performance.

This Standard does not cover single circuit multiple compressor units.

This Standard can be used to quantify the following values for cooling and heating:

(a) Rated cooling capacity.

(b) Rated heating capacity.

(c) Energy efficiency ratio (EER).

(d) Coefficient of performance (COP).

This Standard does not apply to the rating of the following:

(i) Water-source heat pumps.

(ii) Multi-split airconditioners and heat pumps.

(iii) Mobile appliances having a condenser exhaust duct.

(iv) Unitary systems where there is a thermal interaction between the evaporator and condenser.

1.2 OBJECTIVE

The objective of this Standard is to provide means for delivering information on the performance of airconditioning appliances, to determine compliance with minimum energy performance standard requirements specified in AS/NZS 3823.2.